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CENTRALIZED CONTROL/DECENTRALIZED EXECUTION: A VALID TENET OF AIRPOWER

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ABSTRACT

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Centralized control and decentralized execution are fundamental tenets of airpower that have evolved over decades of aerial employment and centuries of command and control during war. Air power has unique characteristics that require a different command and control construct than surface centric combat units. The tenets of centralized control and decentralized execution have recently come under fire due to emerging transformational concepts such as Network Centric Warfare (NCW) and Effects Based Operations (EBO). This paper examines the history of the concept of centralized control/decentralized execution from the advent of modern warfare through Operation Enduring Freedom. Current doctrinal definitions are discussed with an emphasis on differences between Air Force doctrine and joint doctrine. The study highlights the result of poorly articulated doctrinal definitions, and demonstrates that service and joint doctrine as currently written make the concept of centralized control and decentralized execution logically impossible. Service and joint doctrine should change. Even in the face of emerging joint operations concepts, centralized control and decentralized execution remains a valid tenet for the organization and employment of airpower.

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PREFACE

Though not normally included in a research paper, the author would like to acknowledge the work of our National Military Strategy course instructor, Captain Al Lord, USN. His insightful instruction and breadth of knowledge during the academic course, mentoring during the writing of this paper, and unending attempts to turn a student of national security into a national security professional are greatly appreciated.

CENTRALIZED CONTROL/DECENTRALIZED EXECUTION: A VALID TENET OF AIRPOWER

Air Force doctrine states "centralized control and decentralized execution of air and space power are critical to effective employment of air and space power."[1] Air Force doctrine goes so far as to say that centralized control and decentralized execution have been "proven over decades" and are "the fundamental organizing principles for air and space power."[2] However, recent articles opine that technological advances and transformational concepts have rendered these fundamental tenets invalid.[3]

It is understandable why these fundamental tenets have recently come under scrutiny. The military is going through a great period of transformation. The President, through the National Security Strategy, directed transformation of America's national security institutions.[4] In turn, the Secretary of Defense has issued guidance for the services to transform. Included in this guidance are instructions to develop new joint and service concepts.[5] Emerging operational concepts such as Network Centric Warfare (NCW) and Effects Based Operations (EBO) effectively compress the levels of war, blurring the distinction between the strategic, operational and tactical levels.[6] This movement towards increased control may lead to the conclusion that decentralized execution can not occur in a new transformational and technologically advanced environment, as evidenced by a recent article published in the widely read military journal, "Joint Force Quarterly."[7]

The term tenet is not defined in Joint Publications, however, Webster's dictionary defines tenet as "a principle, dogma, belief or doctrine generally held to be true by members of an . . . organization or profession."[8] Operational concepts that increase the effectiveness of airpower have been implemented. The study of doctrine is an ongoing process, and the time proven tenet of centralized control/decentralized execution warrants closer examination before dismissal. This paper will examine the concept of centralized control/decentralized execution and make the argument that even in the face of emerging concepts, centralized control/decentralized execution remains valid for the organization and employment of airpower.

HISTORY OF CENTRALIZED CONTROL/DECENTRALIZED EXECUTION

Air Force doctrine is "a statement of officially sanctioned beliefs . . . that guide the proper use of air and space power."[9] Doctrine is "authoritative but not prescriptive", originating from an accumulation of knowledge gained from experience.[10] The concept of centralized control and decentralized execution has been evolutionary. Today it shapes the warfighting methodology of the Joint Forces Air Component Commander (JFACC) and Air Operations Center (AOC). The

first section of this study will examine historical experiences that resulted in the development of centralized control/decentralized execution as the fundamental tenets of air and space power.

THE STONE AGE OF COMMAND

Prominent historian Martin Van Creveld refers to the period prior to the 1800's as the "Stone Age of Command."[11] Command and control in this era was generally centrally controlled and centrally executed by a single commander who positioned himself on high ground so as to visually see and control the battle.[12] The modern era of warfare was introduced during the 1806 battle of Jena. Napoleon's success against the Prussian military changed the concept of centralized control by unintentionally adding the element of decentralized execution. By the early 1800's, increasingly larger armies necessitated the development of staffs to plan large campaigns and battles that stretched beyond visual range of a single commander. Even though Napoleon directly commanded his army, during the later stages of the battle of Jena his Third Corps Commander seized the initiative and attacked the retreating Prussian main force and decisively defeated the Prussians.[13] This attack occurred without specific guidance from Napoleon and serves as an early example of centralized control and decentralized execution.[14]

AUFTRAGSTAKTIK

While centralized control was an accepted command concept to gain unity of command and unity of effort, Helmuth von Moltke, Chief of the German General Staff from 1857-1887, first formalized the concept of decentralized execution. Technological developments such as railroads, integrated road systems, and fixed telegraph sites enabled faster mobility over a larger battle area. However, field communication systems were strained to control the large formations and it was difficult for rear area commanders to maintain battlefield awareness. To harness the advantage of improved mobility and firepower while retaining a central command structure, the concept of Auftragstaktik was adopted by the German military. This concept used a general staff to plan and implement a commander's guidance into an integrated operation with mission type unit instructions. Subordinate commanders used initiative on the battlefield to accomplish the assigned missions.[15] The concept of Auftragstaktik was a military solution to maintain unity of command and effort, yet overcome limitations (poor field communications) by issuing mission type orders to execute decentrally. This ideology is still prevalent in joint and ground force doctrine today. [16]

WORLD WAR I

Technological advancements influenced doctrine and warfighting during World War I. Improvements in mobile field communications led to the belief that rear area commanders with a larger breadth and perspective of the battlefield could best control forward forces. Decentralized execution was eclipsed by the belief that centralized control was the best form of command with new communication technology. Field commanders remained in rear areas. However, this centralized system did not provide the two-way communication necessary for rear area commanders to form accurate assessments of the forward area. The result was a largely stagnant conflict and trench warfare.[17]

WORLD WAR II

Command and control lessons from World War I led to a resurgence in Auftragstaktik. General George Patton was a leading proponent of what became known as directive control, a central plan with decentralized operations.[18] The biggest technological advancement during the interwar years was the advent of the airplane. Airpower offered mobility, firepower, and a new type of war. However, as World War II commenced, airpower doctrine and theory was not clearly defined.[19] Army Air Corps officers believed that airpower should be centrally controlled by airman to be decisive. Ground commanders disagreed and believed that airpower should be directly assigned to ground units to provide close air support.[20] Two major events occurred during WWII that shaped airpower command and control doctrine today, the Battle of Britain and the North Africa campaign.

An effective example of centralized control/decentralized execution of airpower occurred during the Battle of Britain. Throughout 1939 and 1940 Britain was under air attack from the German Luftwaffe. Facing numerical inferiority, centralized control and decentralized operations were effective at halting the German aerial bombardment. Until the advent of radar, air superiority consisted of “free ranging” aircraft attempting to locate the enemy.[21] In 1940 a British radar system was implemented that included a central tracking station. This became the “nerve center”, taking in reports from shore watchers, maritime patrols, and radar units. Information was filtered and passed to subordinate area sectors. The sector controllers scrambled fighters assigned to their areas and “retained directive authority over the aircraft he dispatched until the fighter saw the enemy . . when combat was broken off, the controller resumed command.”[22] This efficient use of limited assets, utilizing centralized control and decentralized execution, resulted in Hitler’s first defeat of the war.[23]

The North Africa campaign demonstrates the failure to effectively use airpower and resulted in lessons that are the basis for the concept of centralized control/decentralized execution. During planning for Operation Torch in North Africa, the decision was made to parcel out air forces to American and British ground commanders.[24] The combination of command structure and targeting doctrine resulted in two failures in the use of airpower. First, air superiority across the battlespace was not achieved. Second, allied airpower was restricted to operate only within boundaries of the ground unit to which it was assigned, negating the inherent maneuverability and flexibility of airpower. The mismanagement of air assets peaked during the battle at Kasserine Pass, evidenced by numerous fratricide incidents and repeated German aerial attacks. The U.S. Army suffered over 600 casualties from air and ground attack as Rommel advanced through Kasserine Pass.[25] The offensive capability of allied airpower was effectively used when Rommel retreated back through the pass after being halted by British Forces. Now able to operate forward, beyond army ground sectors and boundary restrictions, concentrated American and British airpower proved devastating to Rommel's retreating army. [26] To correct the inefficiencies of airpower in North Africa, Lieutenant General Carl Spaatz, who was co-equal in rank to the senior American and British ground commanders, was placed in charge of all air operations. In July of 1943 FM 100-20, "Command and Employment of Airpower", was published, formalizing the lessons from the war in North Africa. FM 100-20 stated, "Land power and air power are co-equal and independent forces; neither is an auxiliary of the other . . . Control of available air power must be centralized and command must be exercised through the Air Force commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited."[27]

KOREA

The Air Force became a separate service prior to the Korean conflict, however, joint doctrine integrating Air Force and Naval airpower had not been established. The result was two separate airwars.[28] Additionally, severe restraints were put in place in an attempt to not draw the Chinese into the conflict. Extensive Rules of Engagement (ROE) prevented the application of airpower throughout the theater of war and served as an additional method to apply centralized control. However, the ROE was so restrictive that the commander of the 4 th Fighter Interceptor Wing, Colonel Harrison Thyng, sent a message to the Chief of Staff stating that he could no longer achieve air superiority. Though the Air Force did attempt to follow doctrine and lessons learned from World War II during the Korean conflict, this doctrine did not account for the new realities of a limited war.[29] The result was centralized control applied through strict and

inflexible ROE at mission expense, and a command structure that did not provide a unity of airpower effort.

Airpower in the 1950's and 1960's was largely influenced by a focus on the strategic nuclear mission. General Curtis LeMay built a highly centralized command and control system to oversee the newly formed Strategic Air Command. Rigidity and centralized operations were perceived as necessary in order to execute the Single Integrated Operations Plan mission.[30]

VIETNAM

As the Vietnam conflict escalated, airpower doctrine followed this tight centralized control/centralized execution premise. The Johnson administration exercised oversight of all targeting. This close political oversight worked in concert with the centralized command system put into place in the Air Force by the then dominant leaders in the Strategic Air Command.[31] Over the next 10 years the Air Force, mainly those in the tactical forces, struggled to find ways to decentralize operations. Conflict within the Air Force and with other services led to a convoluted and territorial command and control system. Three Tactical Air Control Centers (TACC) evolved over the course of the conflict. These centers, which served similar functions as today's AOC, provided tactical centralized planning (within the constraints of the administration) and control of a specific sector within the theater. Naval airpower was assigned another sector. Strategic Air Command maintained control of all bomber forces, which operated in all sectors but were not under the planning or control of that area TACC. The end result was a theater command and control system that was fragmented and lacked unity of effort. [32]

Though the operational command structure utilized in Vietnam was a failure, several individual elements of the command and control system were successful. Forward radar units subordinate to the TACC evolved into today's system of AOC and Control and Reporting Elements. The TACC evolution, integrated with the Army Ground System provided a responsive control mechanism for retasking close air support assets. These elements developed into the Air Support Operations Center and the Theater Air Control System (TACS).[33] Over the next 20 years the Air Force actively developed a centralized control system that still allowed decentralized execution. Centralized control was first doctrinally linked with decentralized execution in the 1971 version of Air Force Manual 1-1.[34] The most notable advancement was the formation of the JFACC, formally implemented into joint doctrine in 1987.[35] The JFACC provides the structure for centralized air operations in a given theater and is equal to other component commanders. The JFACC recommends the proper employment of

airpower to the Joint Force Commander (JFC) and plans, coordinates, allocates, tasks, and executes aerospace operations to accomplish JFC assigned missions.[36]

DESERT STORM

Operation Desert Storm was the first time airpower was effectively employed in large scale under the direction of a JFACC and operated under the doctrine of centralized control and decentralized execution. The AOC contained a plans division that centrally planned air operations for the entire theater. It was then transmitted via an air tasking order to units of employment. These units planned the tactical portions of the mission. Once airborne, the aircraft fell under the control of the AOC's operations cell, which maintained control of the aircraft using the integrated TACS.[37] Applying the lessons of Vietnam, the streamlined command structure and organization provided the unity of command needed to synchronize airpower into a powerful force yet balanced decentralized execution to foster tactical initiative.[38] Two major lessons were that the centralized planning system was slow to respond to changes in the plan, and that the assessment to targeting cycle needed to occur faster.[39]

ALLIED FORCE

Operation Allied Force marked the first time airpower alone was used in a major conflict. Though Serbian leadership eventually capitulated, studies revealed several shortcomings in command and control. Extensive ROE, varying by participating nation, limited the ability of airpower to achieve the centralized effort that was achieved during Operation Desert Storm.[40] In this politically fragmented conflict, aircraft would stack up over target areas awaiting approval from the AOC to strike.[41] The Kosovo campaign also marked the first time unmanned aerial vehicles (UAVs) were used to identify targets for real time tasking. Video was transmitted to the AOC and aircraft were retasked real time to attack targets selected by the AOC.[42] Though centralized control was disjointed, symptoms of centralized execution developed with the advent of real time tasking via UAVs and theater wide communications with the AOC, which was the approval authority for striking targets. The introduction of the UAV now provided the AOC with the technology to centrally control missions during the execution phase.[43]

ENDURING FREEDOM

The next major air operation, Operation Enduring Freedom (OEF), demonstrated significant technological advancements in the ability to control airpower. These advances enabled a command system that many say will mark the end of decentralized execution. Technology permitted real time out of theater oversight and involvement at the tactical level.[44]

There were examples of traditional centralized control/decentralized execution, evidenced by close air support (CAS) assets being centrally pushed by the AOC to Joint Terminal Air Controllers (JTAC) located on the ground that decentrally executed CAS missions. However, technology often allowed control to come from many sources. Central Intelligence Agency (CIA) predators were controlled from Virginia, many targets needed Central Command (CENTCOM) or civilian authority approval. The AOC, located in theater, had authority for still other targets.[45] General Franks, the CENTCOM Commander, was located at his headquarters in Tampa, Florida and had the capability to watch real time targeting video, while his staff identified potential targets. Simultaneously, AC-130 video targeting a nearby house was transmitted to the AOC in Saudi Arabia and then forwarded to an intelligence officer in California who directed the AC-130 to move the sensor to a known al-Qaida hideout. In concert, linguists in Georgia provided information concerning the identity of individuals and their intent from real time audio files. On station and under control of the AOC was an armada of platforms to include an armed CIA UAV, EC-130, AC-130, EC-135, E-3, and E-8 all launched from airbases throughout the Middle East.[46] However, this technology enabled such a fragmented centralized system that gaining approval to strike targets was the limiting factor. Fleeting targets were identified and targeted, but gaining approval from the proper authority took so long that the target had disappeared by the time approval was garnered.[47] An optimal centralized control/decentralized execution balance was not achieved during OEF.

Centralized control and decentralized execution have been applied in various degrees and combinations throughout history. The ability to centrally control has been enhanced by technology. Evolution of an organizational structure for centralized control has resulted in the JFACC and AOC constructs. OEF demonstrated that the technology now exists to decentrally execute these missions from multiple locations. Because of this new combination of theory, technology, and history, many believe it is time to change the doctrine of centralized control/decentralized execution.

DOCTRINAL DEFINITIONS AND DIFFERENCES

Joint and Air Force doctrine contain definitions of centralized control and decentralized execution. However, the definitions differ between joint and Air Force doctrine, are incomplete, and are not followed in practice.

DEFINING CENTRALIZED CONTROL/DECENTRALIZED EXECUTION

Joint doctrine is based on centralized planning by using commander's intent and mission type orders to convey unity of command/unity of effort. Decentralized execution provides

enhanced tactical flexibility, and exercise of initiative.[48] The Air Force is the only service that includes the term “centralized control” in component doctrine.[49] Joint doctrine specifies that centralized control only applies to joint air operations. Centralized control is defined as “In joint air operations, placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations.”[50] Air Force doctrine clarifies JP1-02 with the additional verbiage “The planning, directing, prioritization, allocation, synchronization, integration and deconfliction of air and space capabilities to achieve the objectives of the joint force commander.”[51]

Much like the term centralized control, the term decentralized execution, as defined in joint doctrine, is clarified in Air Force doctrine. Joint Pub 1-02 defines decentralized execution as “Delegation of execution authority to subordinate commanders.”[52] This definition is further clarified in Air Force doctrine as follows: “Decentralized execution of air and space power is the delegation of execution authority to responsible and capable lower level commanders to achieve effective span of control and to foster disciplined initiative, situational responsiveness, and tactical flexibility.”[53]

Given that the doctrine concept of centralized control only applies to joint air operations, there should not be a difference between joint and Air Force Doctrine. Additionally, the term “execution authority” is not defined in joint or Air Force doctrine, so it introduces the question of what constitutes execution authority? The only difference between the joint and Air Force definition of decentralized execution is that Air Force doctrine simply clarifies the purpose. However, Air Force and joint doctrine both focus the definition on the command chain, which causes doctrinal application problems for the employment of airpower.

DOCTRINAL IMPRECISION

Using the current doctrinal definitions of centralized control and decentralized execution, routine missions become doctrinally impossible. For example, an aircraft is retasked through the TACS and passed to a JTAC co-located with an Army unit under attack. The JTAC deconflicts the aircraft attack from friendly forces, plans the desired weapons effects, and authorizes the release of weapons, all in accordance with the joint doctrine listed in JP 3.09-3, Joint Tactics, Techniques and Procedures for Close Air Support. Joint Publication 3.09-3 provides doctrine on how to plan, prepare, execute and control close air support missions.[54] Yet the JTAC is not a commander and is planning, coordinating, directing, and controlling airpower. Doctrine only permits lower level commanders to accomplish these functions.

Similar doctrinal differences occur when an AOC operations cell diverts an aircraft to a Time Sensitive Target (TST) and authorizes release of a weapon. The AOC controller is not a "lower level commander" as specified in joint doctrine. Likewise, an airborne intercept of an intruding enemy aircraft following the command and control procedures spelled out in Air Force Doctrine Document 2-1.1, Counterair Operations, can not occur with an air battle manager directing a fighter aircraft unless authority to execute the mission is delegated beyond the command chain.[55]

These scenarios illustrate an inability using current doctrinal definitions to delegate authority to a non-commander regardless of qualifications and ability to accomplish the assigned task in the time period required. The definitions work for centralized planning and authority delegated to subordinate commanders on mission type orders, but not for centralized control/decentralized execution of airpower. By current definitions, centralized control cannot exist with decentralized execution, even before transformational concepts such as EBO and NCW are applied. A provision for delegation of authority to an entity that may not be a commander but has the best information and is qualified to perform an assigned task is missing. It also lacks clarity on who is accomplishing the centralized control. As new concepts are developed, these vague doctrinal definitions are resulting in command structures that move control to the highest level at the expense of timely mission execution.

WHY CENTRALIZED CONTROL?

The Air Force is the only service that advocates the tenet of centralized control and decentralized execution, so it may seem logical to adapt to the ground centric doctrine of centralized planning and decentralized execution. However, the unique aspects of airpower, more than any other form of warfare, require centralized control vice merely centralized planning. First, the speed, range, and flexibility of aircraft allow airpower to be retasked from planned missions to missions of higher priority across an entire theater and across the levels of war at a moments notice. Centralized control enhances unity of effort. Because of the lethality of airpower invested in fewer employment platforms, centralized control provides a responsive system to concentrate firepower.[56] Second, more so than any ground force, airpower is able to be centrally controlled. A single AOC has real time visibility and control of all air assets in Afghanistan and Iraq. It is much harder to maintain control of 125,000 troops than 70 aircraft. Lastly, emerging operational concepts that enhance the lethality and flexibility of airpower put more tactical information at higher levels. To issue mission type orders may allow flexibility at the tactical level, but it is becoming increasingly apparent that the levels of war are blurring and

those above the tactical level may have better information and situational awareness in many cases.

THE JFACC AND AOC

The JFACC and AOC construct has emerged as the best command structure to achieve unity of effort/unity of command and still apply decentralized execution. Though arriving via different paths, the British Royal Air Force has also reached this conclusion.[57] However, technology now exists for several levels and organizations to exercise real time control over airpower assets, and this will fragment unity of command. From lessons dating back to Kasserine Pass, Air Force doctrine espouses the best method to control aerospace forces is under a single airman.[58] AFDD 2-1 states "the JFACC is the single airman responsible for planning and directing joint aerospace operations to maximize overall combat power for the JFC."[59] Joint Doctrine also articulates this premise. Joint Pub 3-30 states:

> Centralized control is placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations. Through centralized control of joint air operations, the joint force air component commander (JFACC) provides coherence, guidance, and organization to the air effort and maintains the ability to focus the tremendous impact of air capabilities/forces wherever needed across the theater of operations. Additionally, this assures the effective and efficient use of air capabilities/forces in achieving the joint force commander's (JFC's) objectives.[60]

However, the scenario of multiple staff entities controlling airpower in Afghanistan demonstrates that this doctrine is not followed in practice.

The AOC has recently been designated as a weapons system, qualified to plan, execute, direct, and access theater airpower.[61] This is not articulated in joint doctrine. Joint Pub 3-30 refers to the AOC as the JFACC staff.[62] The JFACC handbook states "staff elements do not have the legal and moral authority to command forces and therefore are not accountable for outcomes."[63] The Pentagon and Unified Commands are staffs and are very efficient at planning. However, they should not be delegated operational authority to control airpower. This authority flows from the JFC to the JFACC and may be executed through the AOC. Allowing real time inputs above the JFACC level will result in fragmentation of a centralized air effort, as seen in North Africa, Korea, Vietnam, Kosovo, and Afghanistan.

The poor articulation of the purpose of the AOC in joint doctrine may result in the belief of a JFC or other staff having the ability "to play JFACC, wing commander, and tactical fighter pilot."[64] The AOC is not a staff, it is an integral part of the air control system, a control system that is unique to airpower. Joint doctrine must reflect this capability. As emerging operational

concepts are integrated into doctrine, it will become very easy to erode not only decentralized execution, but also centralized control.

DOCTRINAL TERMINOLOGY CHANGES

The book "50 Questions Every Airman Can Answer" published by the Air Force provides this explanation of centralized control: "Centralized control is the practice and principle of assigning the authority to a single airman to plan, organize, and execute operational/theater-level aerospace operations."[65] The principle of centralized control is centered on being controlled by an airman, not multiple entities. The current definition is adequate, but joint and Air Force doctrine should be the same since the concept only applies to joint air operations. However, a trend is to use improved technology to allow other entities to control air in spite of joint doctrine. History has demonstrated that a fragmented air control system will not allow airpower to achieve it's full potential. Rather than change or ignore doctrine, new technology and concepts should be applied within the construct of this proven tenet.

A recent article titled "Defining Decentralized Execution in Order to Recognize Centralized Execution" included a recommendation to change the definition of decentralized execution to "delegation of authority to issue orders to subordinate commanders or subordinate elements of a command and control system to accomplish their assigned tasks."[66] This definition makes sense for two reasons. First, the term "execution authority" is not used in any other publication, so it clarifies what is being delegated.[67] Second, it specifies that delegation may go to entities that are performing missions other than the command chain. It also allows delegation of the centralized control task of "directing" to entities assigned to accomplish that task, such as an AOC, weapons director, or JTAC.[68] This change would permit centralized control to exist in harmony with decentralized execution and should be incorporated into joint doctrine.

JOINT OPERATIONS CONCEPTS

Some believe that implementation of emerging joint operations concepts will lead to centralized operations and thus make decentralized execution obsolete. This conceptual framework includes NCW and EBO. These concepts enhance the utility of airpower but potentially change the level of decentralized operations from the JFACC/AOC to the JFC or higher, in a construct called reach forward.[69]

NETWORK CENTRIC WARFARE

NCW is an emerging theory of war that comprises the combination of strategies, new tactics, techniques, procedures, and organizations that operate in a networked environment to

create a warfighting advantage. The advantage is gained by “networking sensors, decision makers, and shooters to achieve a shared awareness”, enabling more rapid and effective decisions.[70] It translates an information advantage into combat power. As the joint forces begin to build integrated networks there are two separate designs emerging. One system tends to flow information through a central location, such as a combat operations center. The other system is a pull system where information is available to all users.[71] There are risks and advantages to both systems. Information in a pull type system allows everyone on the network to have access to the same information, but has the potential to overload a user with unneeded information and slow the decision process. This especially affects pilot task load as it is easy to “swamp the aircraft with too much data.”[72] At the same time, a central filter may provide only needed information to the user, but has the potential to focus information at higher levels and lead to centralized control and execution.[73] The concept of NCW compresses the levels of war because of the availability of information at all levels.[74] Tactical information once available only to the operator at the tactical level is now available at the operational and strategic level.

“Information superiority is an imbalance in one’s favor in the information domain with respect to an adversary. The objective of decision superiority is to turn an information advantage, ie. Information superiority, into a competitive advantage.”[75] However, having information superiority does not ensure decision superiority, and information superiority in itself is meaningless. That is where the commander must apply the operational art of balancing centralized control with decentralized execution to turn information superiority into decision superiority. However, even the JFACC handbook acknowledges that joint doctrine offers limited operational art guidance.[76] “Operational art translates the joint force commander’s strategy into operational design, and ultimately, tactical action, by integrating the key activities at all levels of war.”[77] If this operational art doctrine gap is not filled while the technology that blurs the lines between levels of war is implemented, one potentially faces learning the lessons of centralized control and decentralized execution all over again. It appears that technology is trumping sound doctrine.

While high tech assets were able to find and attack targets in Afghanistan, gaining approval for attack took too long.[78] The time sensitive targeting cycle has five initial phases; detect, locate, identify, decide, and strike.[79] Technology has improved the ability to detect, locate, identify, and strike a target. Information superiority is negated and decision superiority is lost if the decision process is not at the appropriate level and a fleeting target is lost. Though the time from detect to strike is improving, the full effect of NCW will not come to fruition unless the decision making process is centered at the optimum level.

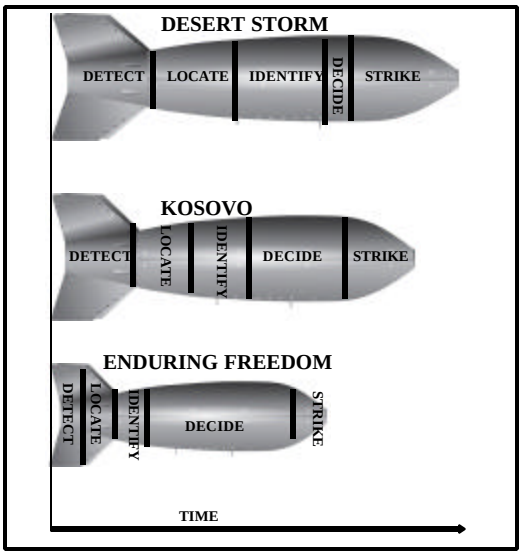

FIGURE 1. CHANGES IN SENSOR TO SHOOTER CYCLE[80]

Control is often inserted into this cycle by pre-designated approval levels assigned to the four categories of targets. JP 3-60 lists four categories of targets; known planned targets, known on call targets, immediate unplanned but known targets, and immediate unknown and unplanned targets. To miss a fleeting TST because authority was not delegated to a level required to accomplish the mission is an example of improper centralized execution. This demonstrates that even in a NCW environment, centralized control/decentralized execution remains valid.

EFFECTS BASED OPERATIONS

EBO is described as "Operations that are planned, executed, assessed, and adapted based on a holistic understanding of the operational environment in order to influence or change system behavior or capabilities using the integrated application of selected instruments of power to achieve directed policy aims."[81] EBO is designed to link operational objectives to tactical level action.[82] However, EBO is not new for airpower practitioners. The original foundation for airpower was based on attacking and crippling specific systems to achieve an effect.[83] The lessons of Kasserine Pass and the fragmented air efforts of Korea and Vietnam emphasize the need to focus airpowers effects on the JFCs objectives. However, a valid concern is the

operational art doctrinal gap noted in the JFACC handbook. Lacking is specific guidance on turning a JFCs desired effects into tactical action. This doctrinal gap, combined with the inherently strategic EBO concept and technology that has enabled tactical decisions to migrate to other levels, has potential to fragment control to the highest levels or even to multiple entities within the interagency.

Communicating the desired effect is what allows an operation to be decentralized, and this is related to the commander's intent used today. "An effect is the anticipated outcome or consequence that results from a particular operation."[84] Commander's intent is defined as "a concise expression of the purpose of the operation and the desired end state that serves as the initial impetus for the planning process. It may also include . . . an assessment of where and how much risk is acceptable during the operation."[85] Communicating the desired effect is part of a commander's intent, and along with accepted risk level, it provides the flexibility to delegate the needed authority to meet mission needs. During OEF the CENTCOM Commander believed that "technology assists, which provide 24/7 situational awareness" enabled his staff to "provide intent and guidance without doing the tactical work of subordinate commanders."[86] Centralizing target approval at too high a level resulted in missed targets and missed effects. The target is only part of the effect, and delving down to that level is well beyond passing intent, guidance, and risk.

EBO has great potential to focus the tremendous capability of airpower to achieve the JFCs desired theater effects. Airpower has always been employed with an effects focus. Integrated correctly, this can increase the impact of airpower on the JFCs plan since the theater plan is now focused on effects. As this concept is developed, it is increasingly important to integrate and articulate the airpower tenet of centralized control/decentralized execution as emerging doctrine is solidified. Technology has made this tenet a choice.

CONCLUSION

Centralized control and decentralized execution have been applied in various degrees and combinations throughout history. Decentralized execution in the past was necessary for timely decisions. Today, it is a choice by commanders. It is now a period of rapid transformation. As new concepts are implemented, tried and true doctrine is coming under fire.

The definition of centralized control and decentralized execution must be changed to make the tenets of centralized control and decentralized execution logically possible. Joint doctrine and Air Force doctrine also need to complement each other. Imprecise doctrinal definitions are leading to misapplication of centralized control/decentralized execution. Airpower

is unique, and so is the method to employ and control airpower. Joint doctrine does not accurately reflect the intent of the tenet of centralized control and decentralized execution.

Emerging technologies and concepts now make it possible to move tactical and operational decision making above the optimal levels, often to the detriment of the mission. Desert Storm proved the capability for the AOC to centralize planning and control. Allied Force demonstrated the capability to transmit real time intelligence to the AOC. Enduring Freedom moved real time execution decision making back to state side headquarters. Overall the trend is that execution decisions are increasingly being made at higher levels as emerging concepts are employed. The void in joint operational art doctrine is allowing a command decision structure to develop on the fly because airpower doctrine is not correctly articulated in joint doctrine. Now is the time to clarify the meaning of centralized control/decentralized execution before the rush to implement emerging concepts make it necessary to relearn this tenet.

The definition of decentralized execution must be changed to read: "delegation of authority to issue orders to subordinate commanders or subordinate elements of a command and control system to accomplish their assigned tasks."[87] This definition eliminates the undefined and ambiguous term "execution authority" and specifies that delegation may go to entities that are best able to perform missions other than the command chain.[88] This change would permit centralized control to exist in harmony with decentralized execution. Additionally, centralized control only applies to joint air operations, so the joint and Air Force definitions need to be aligned. Lastly, joint doctrine must reflect that the AOC is not the JFACC staff, but an integrated part of the air control system capable to be delegated authority.

The Air Force has a goal of being able to attack any target within minutes. General John Jumper, Air Force Chief of Staff, states that the challenge will be meeting single minute timelines when engaging targets in high threat areas and that technological development is required to make that happen.[89] If the tenets of centralized control and decentralized execution are permitted to follow recent trends the challenge will not be technology, it will be attaining a consensus and a decision to strike the target. Rather than allow the fundamental concept of centralized control/decentralized execution to dissolve in light of new technology, the new concepts should be implemented within the construct of centralized control/decentralized execution. This is not possible until the Air Force clarifies what is really meant by centralized control and decentralized execution and then ensures that joint doctrine correctly integrates this fundamental tenet.

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